IS 10873 (1983): Data sheet for air-cooled heat exchangers
[MED 17: Chemical Engineering Plants and Related Equipment]

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(Reaffirmed 1999)

Indian Standard

DATA SHEET FOR AIR-COOLED HEAT EXCHANGERS

[Ref : Doc : EDC 57 (3834)]
Chemical Engineering Sectional Committee, EDC 57; Heat Generation and Heat Transfer Equipment Subcommittee, EDC 57 : 3

1. Scope — This standard covers the technical data required for thermal rating and mechanical design of air-cooled heat exchangers.

2. Data Sheet

DATA SHEET FOR AIR-COOLED HEAT EXCHANGERS

1. Enquiry/Job No. ..... Item No. .....
2. Customer Ref. No. ..... Customer.....
3. Project/Plant..... Date.....
4. Plant location.....
5. Service.....
6. Bundle size.....X.....mm Bundles section.....
7. Number of units.....
8. Bundles/unit.....in parallel/series
9. Surface/bundle : Finned.....m^2 Bare tube.....m^2
10. Surface/unit : Finned.....m^2 Bare tube.....m^2
11. Type — Forced/Induced draft
12. Section size.....X.....mm
13. Sections/unit..... Plot area/unit.....m^2

Performance Data

14. Heat exchanged.....kW MTD (corrected) .....°C
15. Transfer rate.....W/m^2K Finned surface.....m^2 Bare surface.....m^2

Tube Side

16. Fluid circulated.....
17. Total fluid entering.....kg/h
18. Vapour.....kg/h Mol wt (vapour).....
19. Liquid.....kg/h Enthalpy/Latent heat.....J/kg
    Relative density.....
    Viscosity.....cP
20. Steam.....kg/h Specific heat.....J/kg K
21. Non-condensables.....kg/h Thermal conductivity.....W/m K
22. Vapour condensed.....kg/h Velocity.....m/s
23. Steam condensed.....kg/h Pressure drop : Allowable.....kPa / Calculated.....
24. Operating temperature: In..... / Out.... °C Fouling resistance.....m^2K/W
25. Operating pressure..... kPa Passes/bundle.....

Air Side

26. Temperature : In ..... / Out..... °C Altitude.....m
27. Total flow/unit.....kg/h Static pressure.....kPa
28. Quantity/fan.....kg/h Power/fan.....kW
29. Face velocity.....m/s Power/unit.....kW

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Construction Each Bundle

30. Design pressure.....kPa Test pressure.....kPa
31. Design temperature.....°C
32. Code requirements.....

Tubes

33. Type of tubing.....Tube material.....Fin material.....
34. Bare tubes : No. .....No. of rows..... OD.....mm ID.....mm
    Length.....mm Pitch.....mm △
35. Fins : Spacing...../m OD.....mm Root diameter.....mm Thickness.....mm

Headers

36. Type — Plug/Removable bonnet/Removable cover plate
37. No. of splits.....Material.....Corrosion allowance.....mm
38. Plug/Gasket material..... Side frame material — CS (inside zinc protected)
39. Nozzle material : In..... Out..... Coupling material : Vent..... Drain.....

Construction Each Section

40. Structure : Section.....Group No. ..... Design wind load.....MPa
41. Plenum chamber type.....
42. Fans : No. .....Diameter.....mm Rev/min..... Make.....
43. Blades : Material.....No./fan.....Pitch angle (Design).....
44. Hubs : Material.....Pitch — Autovariable/Adjustable No. .....
45. Drivers : No. .....Type..... Make.....
    H.P. (each).....Rev/min.....Volts.....Hertz.....Phase.....
46. Couplings : No. .....Type..... Make.....
47. Speed reducers : No. .....Type..... Make.....
    Reduction ratio.....Service rating.....
48. Louvers : Material.....Type..... Make.....
49. Mass : Each section : Dry.....kg
    Full of water.....kg
    Each bundle : Dry.....kg
    Full of water.....kg

Note 1 — The purchaser should clearly furnish the information including any special requirement.

Note 2 — Temperature versus Enthaply diagram with bubble/dew point shall be provided in case of condensation.

Note 3 — An arrangement drawing for the whole unit giving broad dimensions besides other features should also be included in this data sheet.

EXPLANATORY NOTE

International System (SI) Units have been used in the standard. The relationship of these units to other units is given below for guidance:

1 kcal/h = 1·163 W
1 kWh = $3·6 \times 10^6$ J
1 kgf/m² = 9·806 Pa(N/m²)

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